GLREA
GREAT LAKES RENEWABLE ENERGY ASSOCIATION

Comments on the Value and Benefits of Renewable Energy

Submitted by John Sarver, GLREA Executive Director

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The Great Lakes Renewable Energy Association (GLREA) is a statewide non-profit that advocates for a greater use of renewable energy in Michigan and provides education and training on renewable energy. GLREA has 186 members throughout Michigan and many are small businesses that sell and install solar and wind energy systems.

It is important to emphasize that any state energy policy or utility planning should put energy efficiency first. Energy efficiency is our cleanest, most reliable, and cost effective energy option. GLREA believes that renewable energy resources complement energy efficiency and other energy resources and that state energy policy and utility planning should take into account the many benefits that come from a greater use of renewable energy resources. Renewable energy benefits include:

<u>Renewable energy resources are cleaner than fossil fuels and provide a no regrets "insurance policy" against climate change impacts</u>

It is obvious that wind and solar energy are cleaner than fossil fuels which have a negative impact on air quality and public health. Incorporating this impact in state energy policy and utility planning is needed. Environmental Health & Engineering, Inc. prepared a report for the Michigan Environmental Council in June 2011 called *Public Health Impacts of Old Coal-Fired Power Plants in Michigan*. The report only quantifies the economic burden and health toll that the state's oldest coal-fired power plants create and only examines pollution from small particulate matter. Of course, mercury and other pollutants from burning fossil fuels also have significant impacts on public health.

The report found that the state's nine oldest coal plants cost a family of four an average of over $500 per year in expenses and damages associated with increased hospital admissions, premature deaths and treatments for asthma, respiratory ailments, and cardiovascular problems. The study also estimated national impacts of Michigan's old coal power plants at $5.4 billion in health care costs – mostly in the Great Lakes region where much of the pollution falls out.

Carbon dioxide from fossil fuels has a major impact on climate change. While there is no real scientific debate about climate change, there is a political debate about climate change, its causes, and what to do about it. The debates lose sight that energy efficiency and renewable energy can be an inexpensive, no regrets "insurance policy" against catastrophic results from climate change.

Prices of renewable energy resources are declining

Fossil fuel prices are volatile. The only safe prediction about energy cost predictions is that they will be wrong. Nuclear power has not proven to be "too cheap to meter." Meanwhile prices for renewable energy resources have been declining as technology improvements have been made and renewables are gaining some economies of scale. As the February 2012 MPSC *Report on the Implementation of the P.A. 295 Renewable Energy Standard and the Cost-Effectiveness of the Energy Standards* indicates "The actual cost of renewable energy contracts submitted to the Commission to date shows a downward pricing trend." Most of the contracts are for wind power.

Solar power has been expensive, but the installed price of photovoltaic (PV) power in the U.S. fell substantially in 2011 and through the first half of 2012, according to *Photovoltaic (PV) Pricing Trends: Historical, Recent, and Near-Term Projections* (NREL/LBNL November 2012). The report indicates that the median installed price of residential and commercial PV systems completed in 2011 fell by roughly 11 to 14 percent from the year before, depending on system size. These recent installed price reductions are attributable, in large part, to dramatic reductions in PV module prices, which have been falling since 2008. In 2011, the median reported installed price of residential and commercial PV systems was $6.13/W for systems of 10 kW or smaller, $5.62/W for systems of 10–100 kW, and $4.87/W for systems larger than 100 kW.

The NREL/LBNL report also indicates that most analysts project that PV price trends will maintain their downward trajectory in the near term as PV hardware costs continue to decline. Significant savings are also possible in soft costs like permitting and the Michigan Energy Office has started an initiative to realize these cost savings in Michigan.

Renewable energy resources help provide a more diverse and consequently more reliable electric system

It is the part of a wise man to keep himself to-day for to-morrow, and not to venture all his eggs in one basket. Miguel de Cervantes

Whether a stock portfolio or an electric generation portfolio, this common wisdom applies. Energy efficiency, natural gas, and renewables are not competitors. They are collaborators in making a more diverse and reliable electric system.

Renewable energy resources provide a price hedge against volatile and unknown future fossil fuel prices

Renewable technologies can mitigate fuel price risk within a resource portfolio. Wind and solar power have no fuel costs and can provide a price hedge against volatile and unknown future fossil fuel prices. Solar power providing electricity at peak times can provide a hedge against costly peak demand purchases from other utilities that may be needed on hot and sunny summer days.

The report *Quantifying the Value that Wind Power Provides as a Hedge Against Volatile Natural Gas Prices* (Mark Bolinger, Ryan Wiser and William Golove, Lawrence Berkeley National Laboratory, June 2002) describes the benefit from having diversity in electric generation. The LBNL paper quantifies this benefit by equating it with the cost of achieving price stability through other means, particularly gas-based financial derivatives. The report authors found that over a two year period natural gas consumers had to pay a premium of roughly 0.50¢/kWh over expected spot prices to lock in natural gas prices for the next 10 years. This finding provides an insight into the price hedging value of renewable energy.

Distributed renewable energy resources can avoid or defer investments in the distribution system

A targeted placement of renewable energy resources can allow a utility to avoid or defer investments needed to upgrade the distribution system. A recent study by Lawrence Berkeley National Laboratory (*An Evaluation of Solar Valuation Methods Used in Utility Planning and Procurement Processes* by Andrew Mills and Ryan Wiser, Dec. 2012, pp. 31-32) includes a description of potential benefits from distributed renewable energy resources.

As indicated in the study, the California Investor Owned Utility planning process explicitly included a distribution system cost-reduction benefit for portfolios with large amounts of distributed PV. The estimate of the distribution benefit applied to distributed PV varied by location, but was most often around $5/MWh (with a range of $4.3 to $26.2/MWh). The study also indicates that distributed PV can also reduce transmission line losses. Production cost models can be used to account for reduced transmission losses when solar is located near major load centers.

Renewable energy resources can provide jobs in Michigan

Michigan's engineering expertise, skilled workforce, and entrepreneurial businesses provide big opportunities for the renewable energy sector to provide jobs in Michigan. A greater use of renewable energy resources in Michigan encourages and strengthens job growth in this area. *The Solar and Wind Energy Supply Chain in Michigan* report from the Environmental Law and Policy Center (March, 2011 p. 1) indicates that Michigan is home to more than 200 solar and wind supply chain companies with more than 4,000 jobs tied to the wind industry and 6,300 to the solar industry. Clean tech is the state's fastest growing sector and Michigan ranks fourth in the nation for number of jobs in the solar industry and first for clean energy patents.

Public support is strong for a greater use of renewable energy resources

Although the voters in Michigan rejected Proposal 3 in November, polling after the election indicated that many "no" voters support increased renewable energy in Michigan. They did not believe the constitution should be used to achieve the goal, but the poll, conducted by Greenberg Quinlan Rosner Research, showed that 73% of voters support an increased use of renewable energy in Michigan and that includes 78% of Democrats, 76% of independents, and 65% of Republicans.

Existing state policy and utility planning does not recognize and take into account many of the benefits identified above. GLREA believes Michigan needs to have a clean, diverse, reliable, and affordable electric system. How much renewable energy resources should be used to generate electricity in Michigan will only come from a sophisticated and comprehensive analysis that incorporates the benefits described above.

Experiences from other states and countries indicate that our renewable energy share can and should be above 10%.

- Denmark's wind power was over 30% of its electricity consumption by the end of 2012. Denmark has set a goal to get 50% of its electricity needs from wind power by 2020 and is aiming for 100% renewable energy by 2050.

- Germany's share of electricity produced from renewable energy has increased from 6.3% of the national total in 2000 to about 25% in the first half of 2012.

- Renewables make up about 35% of Scotland's electric generation. Scotland has ambitious smart grid plans which will help it reach its 2020 goal of having 100% of its electric energy provided by renewables.

- Comparing Michigan to other states in the Midwest, Michigan has a relatively modest goal:

  Michigan: 10% by 2015
  Wisconsin: 10% by 2015
  Ohio: 12.5% by 2024
  Illinois: 25% by 2025
  Minnesota: 25% by 2025

- 2011 Annual Market Report from AWEA indicates that four states received more than 12% percent of their electricity from wind in 2011:

  South Dakota: 22.3%
  Iowa: 18.8%
  North Dakota: 14.7%
  Minnesota: 12.7%

The multiple benefits of renewable energy resources and the experience from other states and countries indicate that Michigan's renewable energy share of electric generation can and should be increased above 10% after 2015.